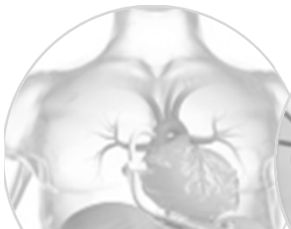
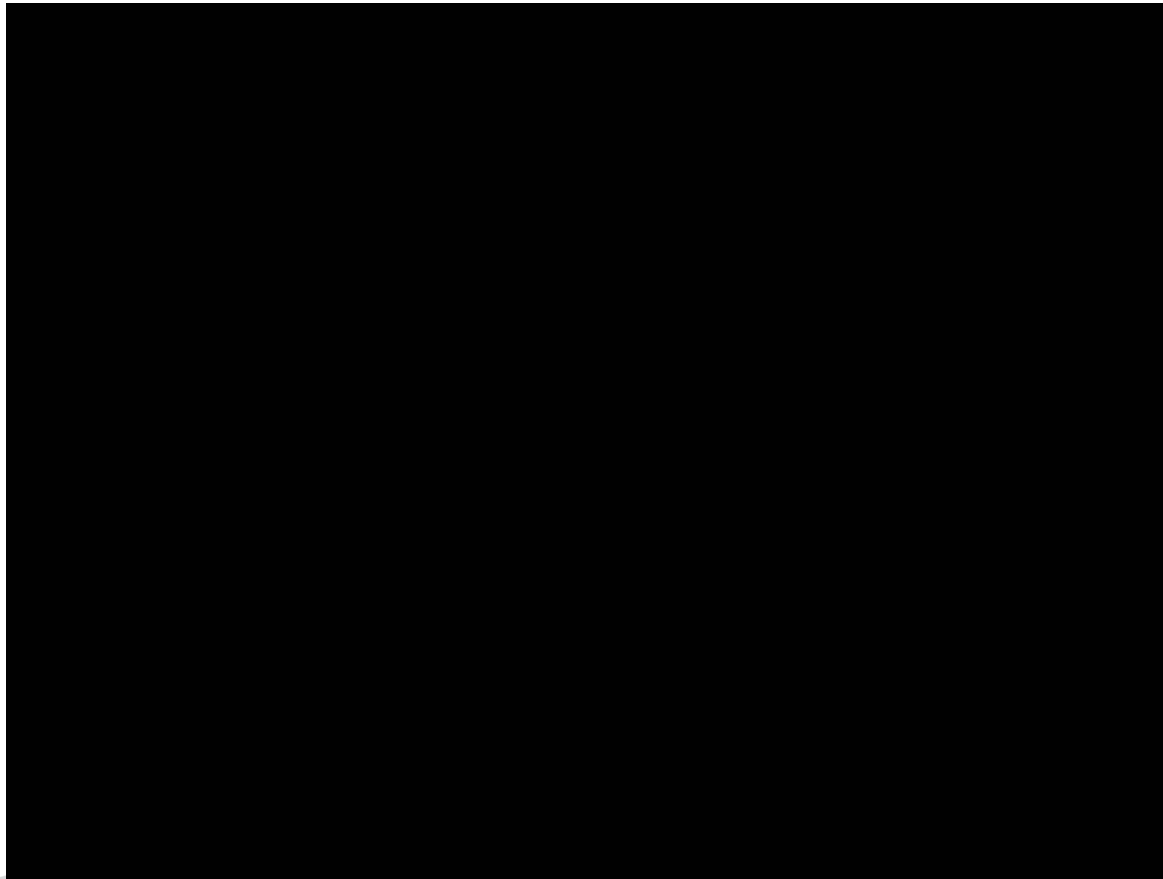
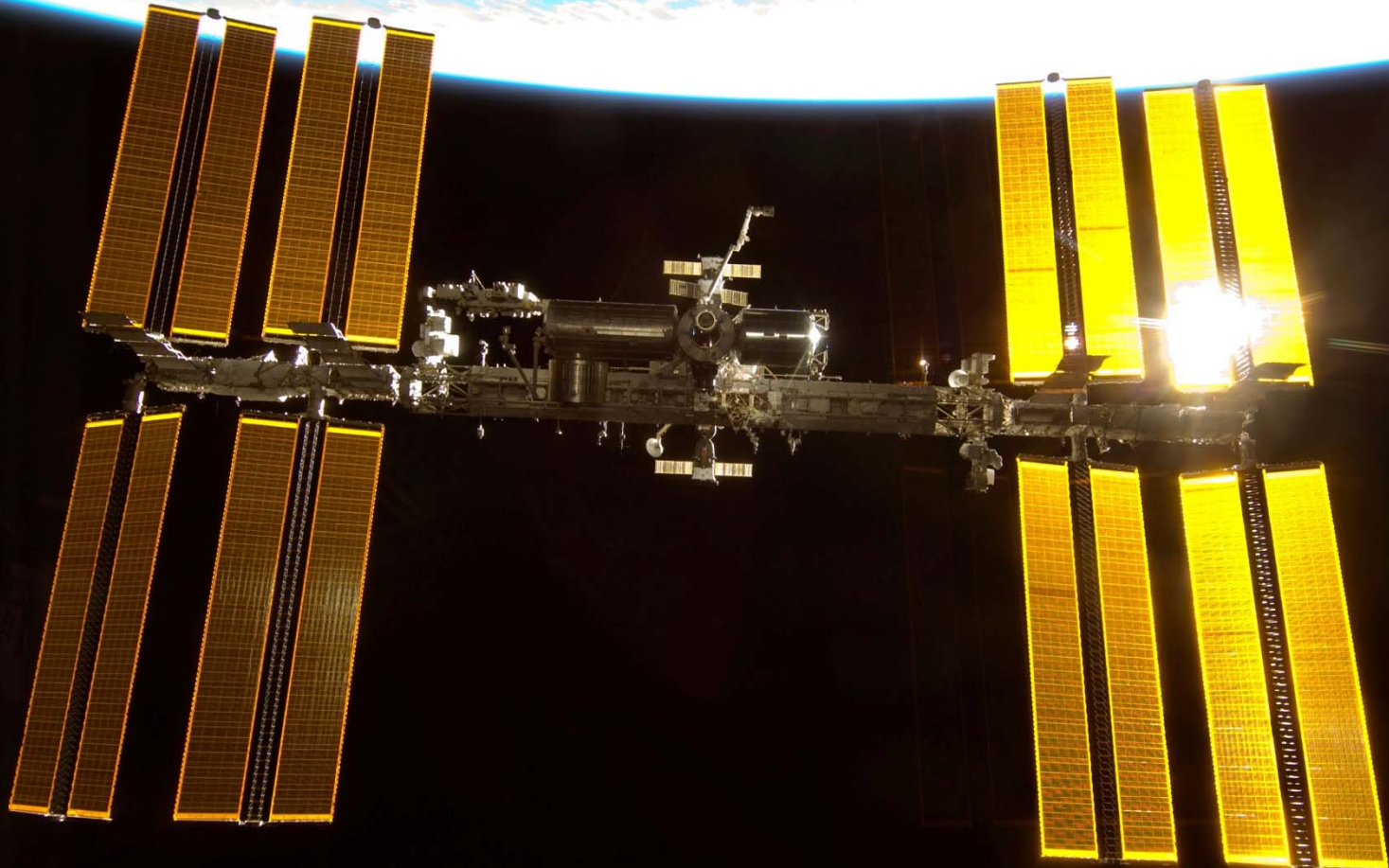


NASA Technologies That Benefit Society

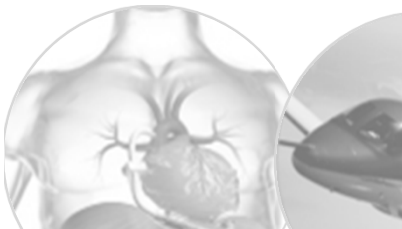


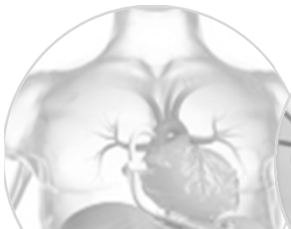


What Does the Space Program Do for Me?

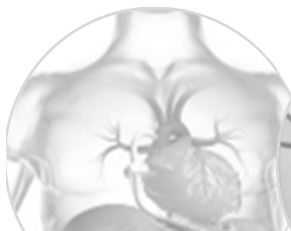
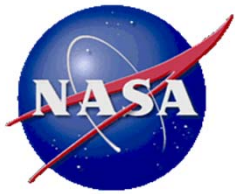










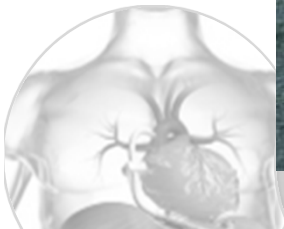


Trainer

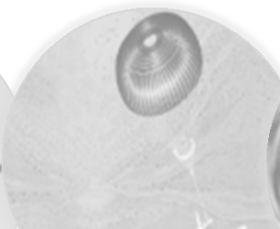
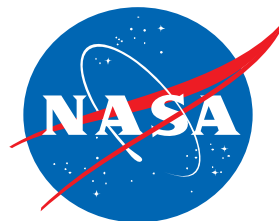


On-Orbit Exercising









Your Title Here



NASA Technologies That Benefit Society



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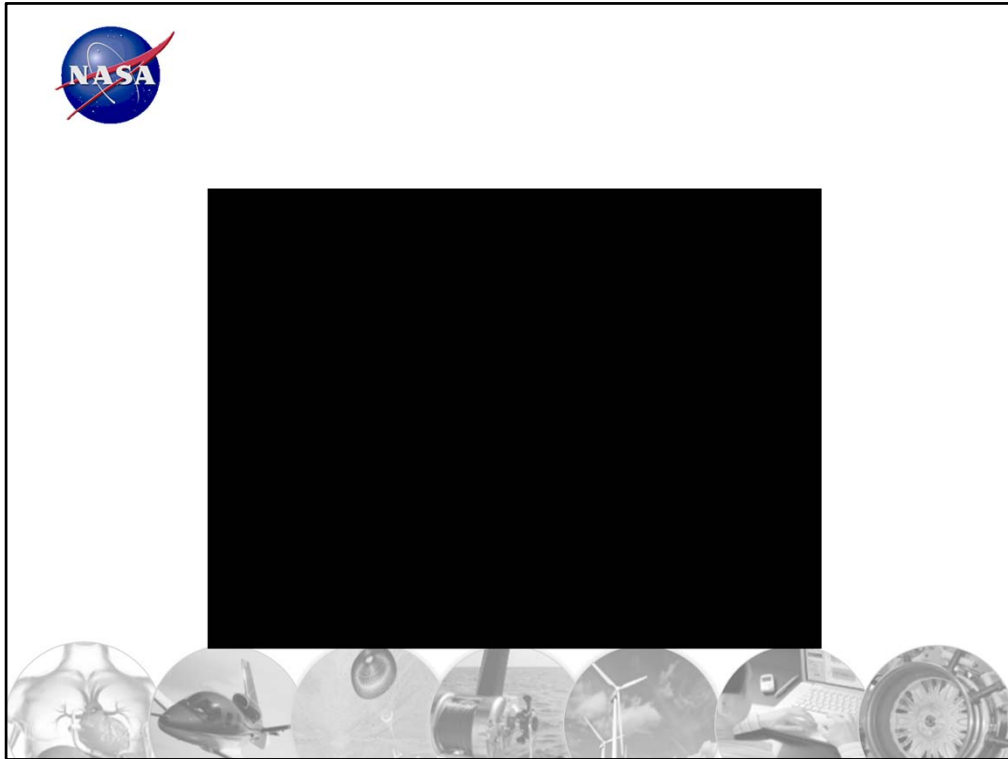
The most important thing is to familiarize yourself with what you're working with. Don't stress about knowing all the details but know what to expect when you talk about the slides and the presentation. Time management is probably the most important thing. Don't rush through the presentation but make sure you get through everything.

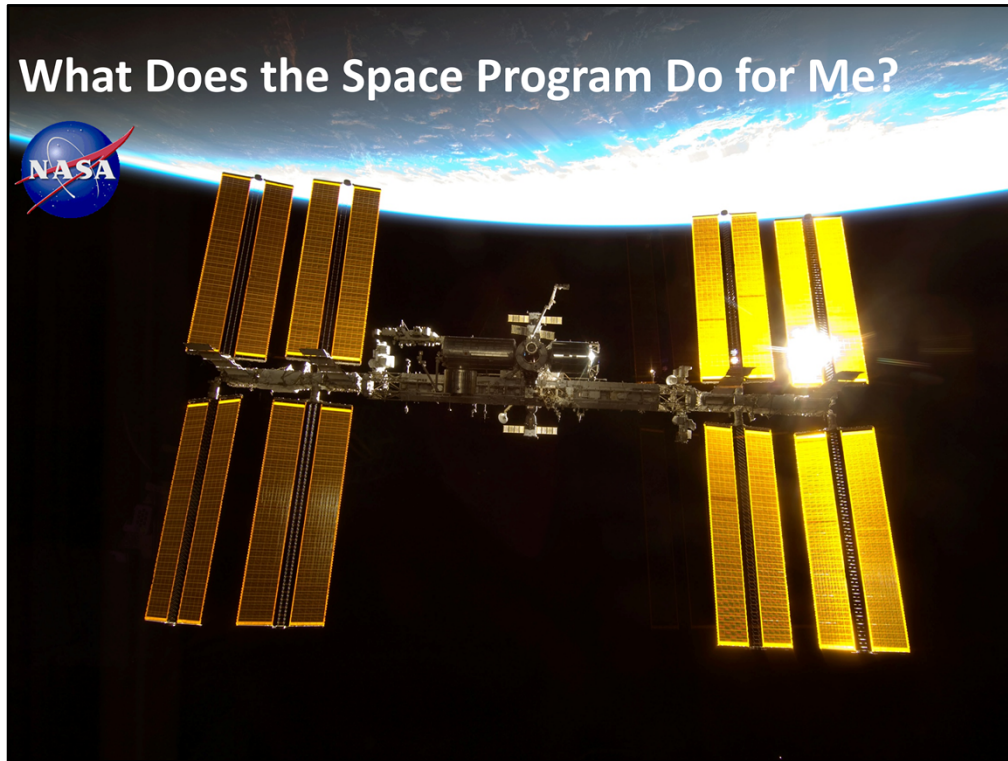
At the end of the day, getting through the presentation isn't the most important thing, answering questions and engaging students is. Also, the older the students in the group are, the more detail you can expect them to hang on to. You should also expect more questions from older groups.

It's important to be able to communicate what you do for NASA. You need to either go ahead and address your profession or just be prepared because someone will ask.

What's included in the notes of this presentation is a baseline of possible information. There is much more that can be discussed. Don't feel like you need to say everything included, and you can include your own information. This is only a tool to help you succeed!

Breathe.
Be yourself.
Have fun.
Good luck!





Applications developed on Earth of technology needed for space flight have produced thousands of spinoffs that contribute to improving national security, the economy, productivity and lifestyle. Over the course of its history, NASA has nurtured partnerships with the private sector to facilitate the transfer of NASA-developed technology.

For every dollar spent on research and development in the space program, it receives back \$7 back in the form of corporate and personal income taxes from increased jobs and economic growth.

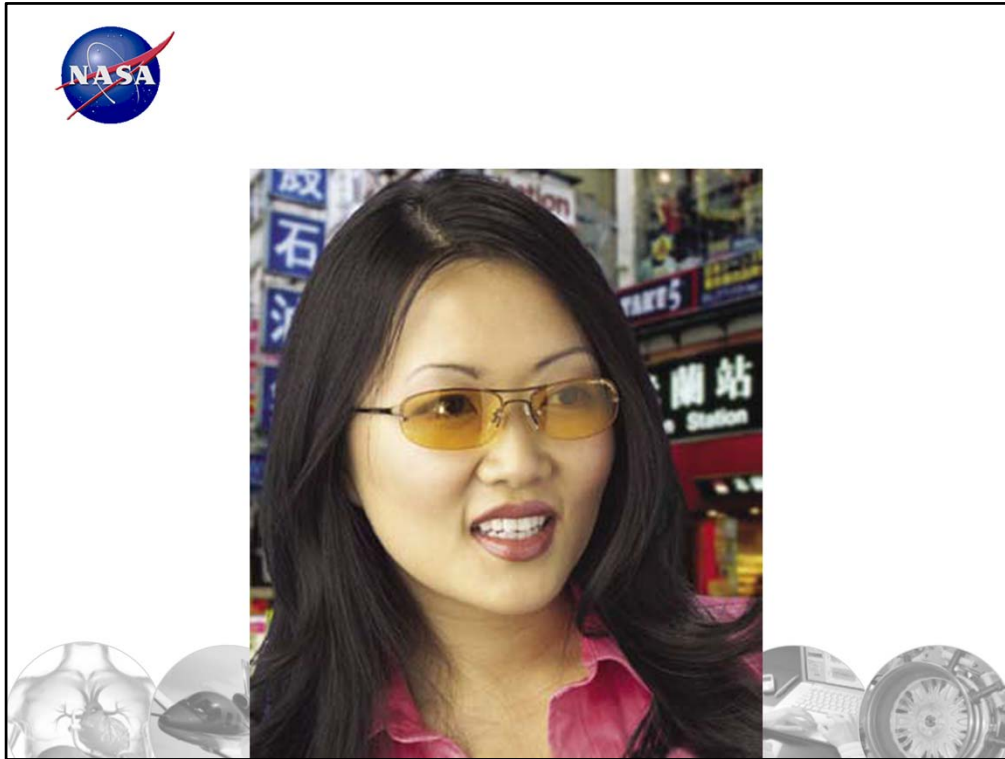
We'll review some of these technologies in this presentation.



Speedo sought to work with NASA because of the agency's expertise in fluid dynamics and in the area of combating drag. The new suit, called LZR Racer, repels water and is extremely lightweight. All of the seams are ultrasonically fused, not stitched and this reduced drag 6%. The suit reduced skin drag 24% more than Fastskin, the previous Speedo racing suit fabric. The benefit: in March 2008, athletes wearing the Racer broke 13 world records.

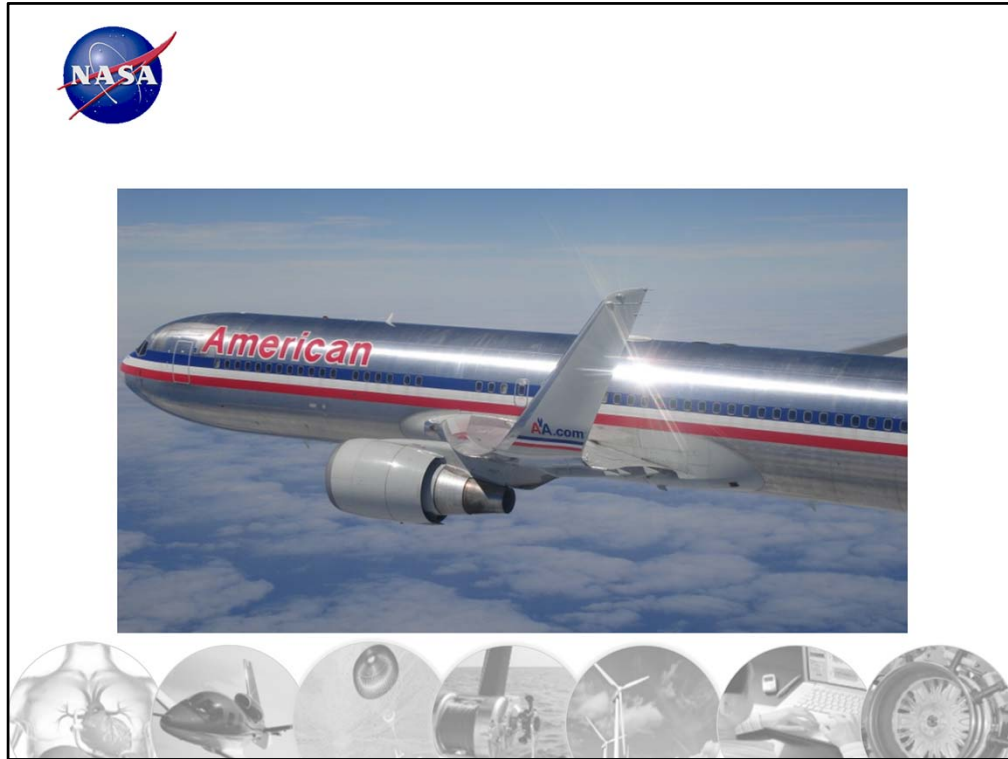


A new technology, known as Liquidmetal alloy, is the result of a project funded by NASA's Jet Propulsion Lab. The unique technology is a blend of titanium, zirconium, nickel, copper and beryllium that achieves a strength greater than titanium. NASA plans to use this metal in the construction of a drill that will help for the search of water beneath the surface of Mars. Many other applications include opportunities in aerospace, defense, military, automotive, medical instrumentation and sporting goods.



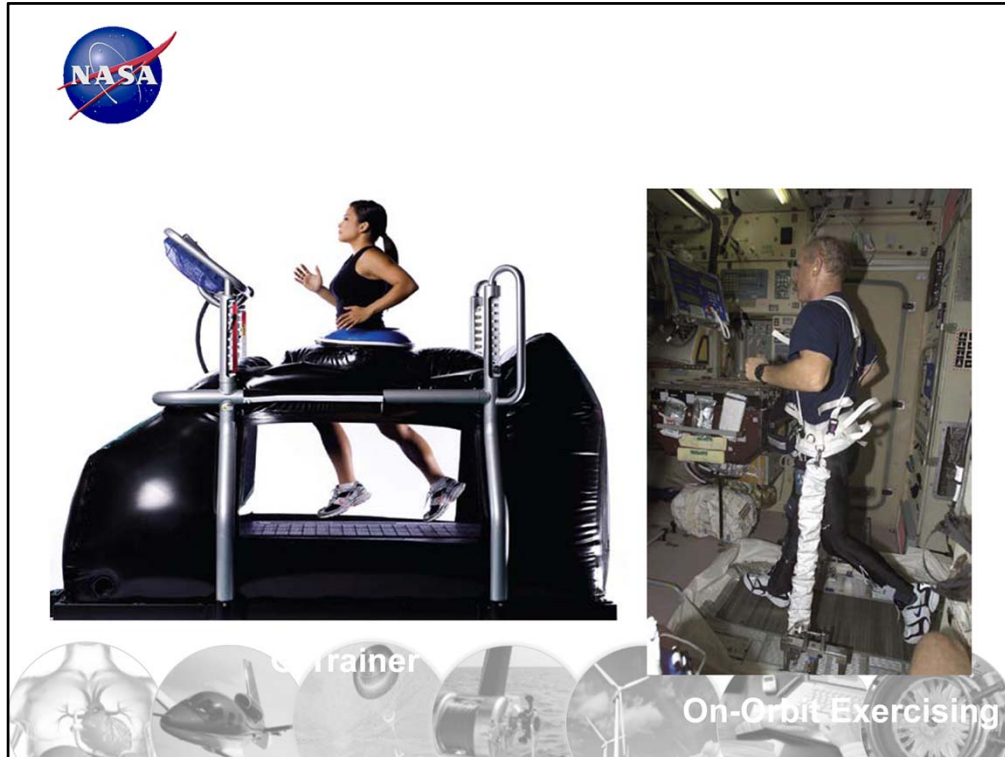
Developed in the 1980's, the original Sun Tigers Inc sunlight-filtering lens has withstood the test of time. This technology was first reported in 1987 by NASA's JPL. Two scientists from JPL were later tasked with studying the harmful effects of radiation produced during laser and welding work. They came up with a transparent welding curtain that absorbs, filters and scatters light to maximize protection of human eyes.

The two scientists then began doing business as Eagle Eye Optics. Each pair of sunglasses comes complete with ultraviolet protection, dual layer scratch resistant coating, polarized filters for maximum protection against glare and high visual clarity. Sufficient evidence shows that damage to the eye, especially to the retina, starts much earlier than most people realize. Sun filtering sunglasses are important.



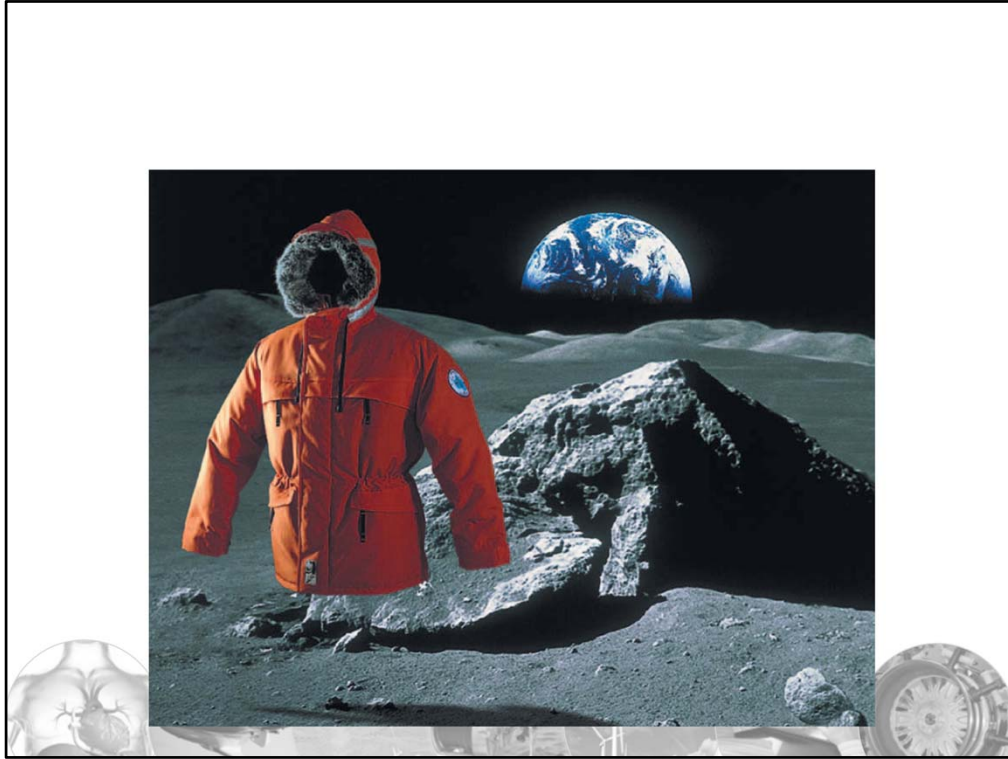
Winglets seen at the tips of airplane wings are among aviation's most visible fuel-saving, performance enhancing technology. Aerodynamics centers on two major forces—lift and drag. Lift enables the plane to fly and drag is the resistance encountered while moving through the air. The air coming off the end of a standard wing, in a vortex, causes significant drag and turbulence, forcing the spacing between takeoffs. A Langley engineer for NASA published findings in 1976 and verified by test in 1977 that winglets produce a 7 percent increase in lift-drag ratio with a 20 percent decrease in drag.

This configuration reduces emissions, allows for greater range and carry more payload and the planes fly more quietly. Winglet technology has saved 2 billion gallons of jet fuel worldwide in 2010.

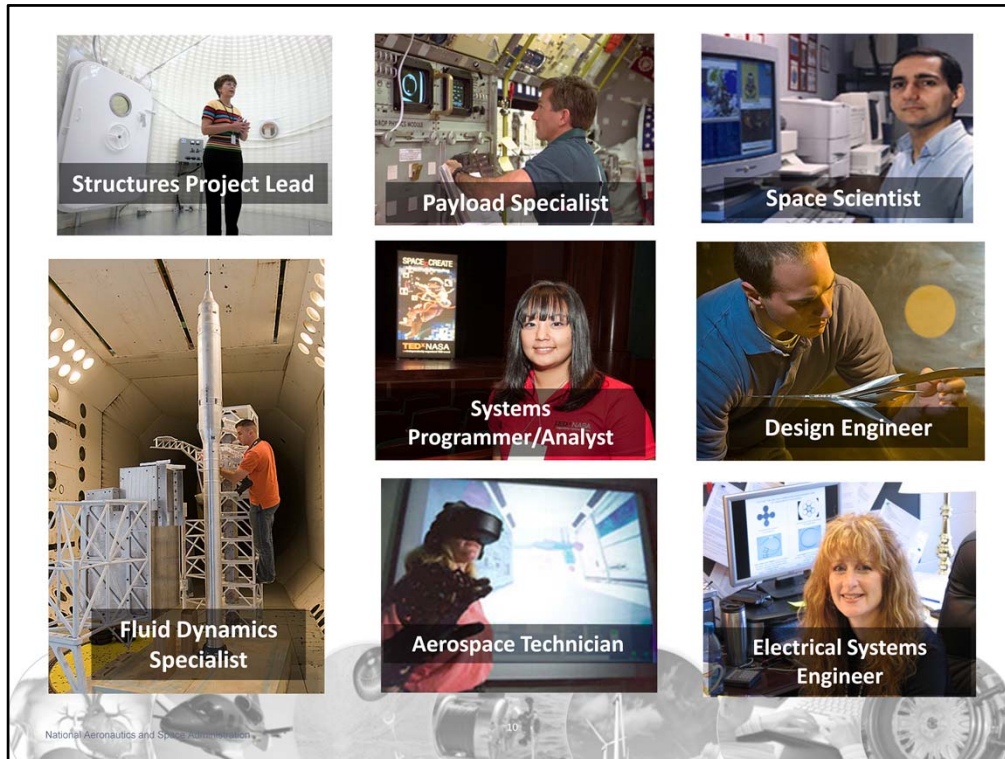


Living in space presents many challenges for the human body, including loss of bone density, exposure to high levels of radiation, and muscle loss caused by the lack of resistance from gravity. So exercising in space is a requirement, especially with a tensioning of the force on the lower body.

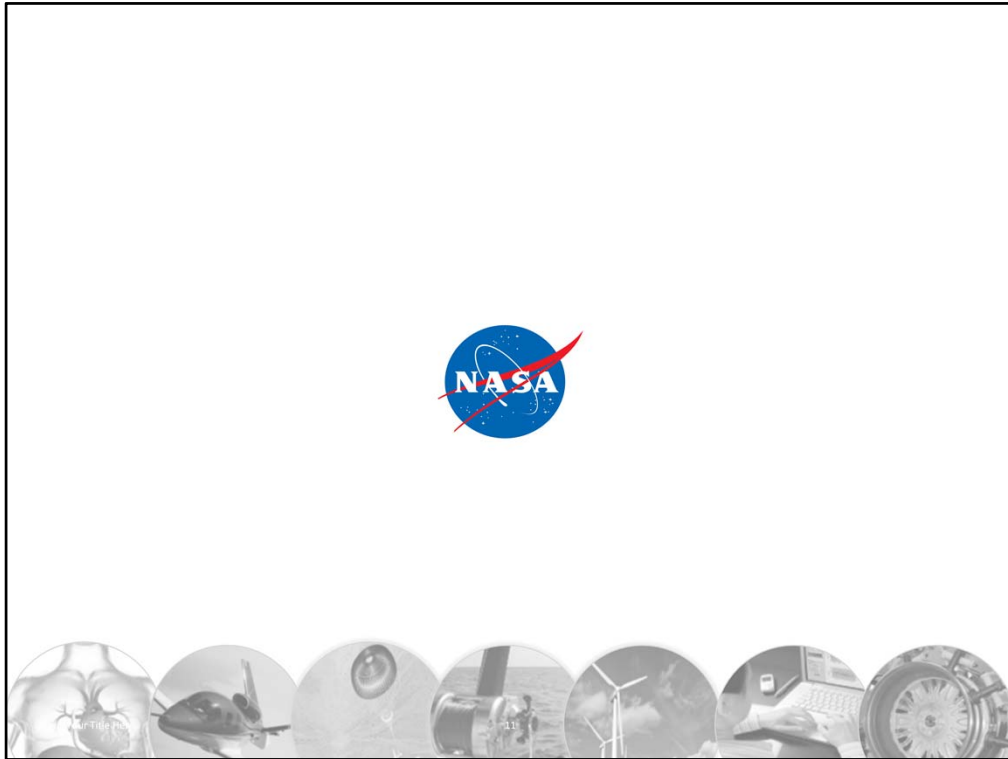
A NASA researcher developed the G-Trainer to assist people with an adjustable tension treadmill. On Earth, the G-Trainer applies pressure to a person's lower body to unload weight, lift the body, and reduce strain and impact during treadmill exercise. It can be used at military hospitals, athletic teams and physical therapists. It helps joint stress injuries, recovery from surgeries and physical therapy for brain injuries.



Aerogel represents what technology experts believe to be the best insulation material ever invented. It is very light, flexible and can withstand temperatures of minus 3000 deg F. Aerogel products will be found in everything from clothing, to building insulation to space vehicles. Corpo Nove incorporated the Spaceloft version of the NASA-developed aerogel material into this jacket which was test during an Antarctic expedition.



Here is a list of exciting careers that students can pursue relating to STEM (science, engineering, technology, mathematics) in the field of rocketry.



NASA Presentation Sign-Off Page